

Amendment to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended): A method of forming ~~a fiber-reinforced composite~~ an orthodontic wire, comprising:

placing a composite of straight fiber and resin in an elongate tunnel of a shrinkable die formed of a heat-sensitive material that shrinks in response to heat, the tunnel having a pre-defined transversal cross-sectional shape and having an open end for allowing removal of excess resin;

shrinking the die by heating the die to reduce the transversal cross-section of the tunnel along a longitudinal extent of the tunnel so as to compress the composite of fiber and resin to assume the pre-defined transversal cross-sectional shape;  
[[and]]

curing the composite of fiber and resin, to form the orthodontic wire, and separating the die from the orthodontic wire;

wherein the tunnel ~~retains~~ assumes the pre-defined cross-sectional shape and size after said die is completely shrunk and shrinks uniformly in cross-sectional area as the die is shrunk.

2. (currently amended): The method of claim 1, wherein the shrinking comprises shrinking the die ~~sufficiently~~ completely to compress the composite of fiber and resin into a pre-determined transversal cross-sectional shape.
3. (previously presented): The method of claim 2 wherein the curing comprises curing the composite fiber and resin in the die so that the composite of fiber and resin retains its shape after it is separated from the die.

4. (original): The method of claim 3, wherein the die is bendable lengthwise, and further comprising bending the die lengthwise so as to shape the composite of fiber and resin in the die.
5. (original): The method of claim 4 wherein the curing is performed after the shrinking and bending.
6. (cancelled)
7. (original): The method of claim 1 wherein the fiber comprises a plurality of elongated strands each having a length longer than the length of the tunnel.
8. (original): The method of claim 7, wherein the placing comprises pulling the plurality of strands into and through the tunnel of the die.
9. (original): The method of claim 8, further comprising pulling each one of the plurality of strands at both ends so as to straighten it in the die.
10. (original): The method of claim 8, further comprising impregnating the plurality of strands with the resin prior to the pulling.
11. (original): The method of claim 10, further comprising, after the pulling, adding additional resin in the tunnel of the die so as to further fill the tunnel.
12. (original): The method of claim 1, wherein said composite is placed in said die by placing the fiber in the tunnel of the die, and thereafter adding resin in the tunnel.
13. (original): The method of claim 1, further comprising orienting the die so that the tunnel is vertically disposed.
14. (original): The method of claim 4, wherein the bending comprises bending the die to shape the composite of fiber and resin into an arched wire suitable for use in an orthodontic treatment.

15. (cancelled)

16. (cancelled)

17. (currently amended): The method of claim 1, wherein the fiber reinforced composite has a substantially circular cross-sectional shape and size defined by the die.

18. (previously presented): The method of claim 17, wherein the fiber reinforced composite is an orthodontic wire.

19. (currently amended): A method of forming a fiber reinforced composite orthodontic wire, comprising:

placing a plurality of elongate fiber strands and resin in a tunnel of a shrinkable die formed of a heat-sensitive material that shrinks in response to heat, said tunnel extending longitudinally along an axis and having a pre-defined transversal cross-sectional shape and size and having an open end for allowing removal of excess resin;

pulling opposite ends of said fiber strands to extend said fiber strands along said tunnel, generally parallel to said axis;

shrinking said die by heating said die to compress said fiber strands and said resin in said tunnel about said axis, to distribute said fiber substantially evenly within said tunnel, said fiber strands and said resin being compressed to assume said pre-defined transversal cross-sectional shape and size; and

curing said fiber and said resin, to form said fiber reinforced composite orthodontic wire,

separating said die from said fiber reinforced composite orthodontic wire,

wherein the tunnel retains assumes said pre-defined cross-sectional shape and size after said die is completely shrunk and shrinks uniformly in cross-sectional area as said die is shrunk.

20. (previously presented): The method of claim 19, wherein the die is bendable along said axis, and further comprising bending the die along said axis so as to shape the composite of fiber and resin in the die.
21. (currently amended): A method of forming ~~a fiber-reinforced composite~~ an orthodontic wire, comprising:
- placing a composite of fiber and resin in an elongate tunnel of a shrinkable die formed of a heat-sensitive material that shrinks in response to heat, said tunnel having an opening for allowing removal of excess resin;
- shrinking the die by heating the die to reduce the transversal cross-section of the tunnel along a longitudinal extent of the tunnel so as to compress the composite of fiber and resin to assume a transversal cross-sectional shape defined by said tunnel of said die, wherein the tunnel assumes a pre-defined cross-sectional shape and size after said die is completely shrunk; [[and]]
- curing the composite of fiber and resin, to form the orthodontic wire; and separating said die from said orthodontic wire.
22. (new): The method of claim 1, wherein the orthodontic wire is biocompatible.
23. (new): The method of claim 1, wherein the transversal cross-section of the tunnel is circular and the orthodontic wire has a diameter defined by the die when the die is completely shrunk.